REMARKS

In this case, Claims 1-20 and 31-35 are pending. Claims 21-30 and 36-55 have been canceled as drawn to non-elected inventions. The pending claims were rejected only on the basis of Section 103, United States Patent No. 4,351,699 to *Osborn III* being the primary reference in all of the rejections.

Claims 1-6, 10-12 and 31-35 were rejected over the '699 patent with or without United States Patent No. 5,582,681 to *Back et al.* which was cited to show that the use of recycle fiber to make absorbent product was known, whereas Claims 11 and 31-35 were rejected over *Osborn III*, '699, Back et al. '681 in further view of *Wendt et al.* '839.

Pending Claims 1-20 , 32-35, amended Claim 31, as well as new Claims 56 and 57 are believed patentable over the art of record. That art fails to disclose or suggest the present invention as recited in the claims. The claims specifically require (1) a predominantly recycle furnish and (2) a synergistic combination of nonionic and cationic surfactants or specific attributes of the surfactants employed. The advantages may be seen in Table 1 of the specification, last rows, reproduced below:

Table 1: Tensile reduction data for debonder/softener formulations.

Formulation	Quat 1[A] (mol/ton)	Tensile Reduction (%)	Quat 2[B] (mol/ton)	Tensile Reduction (%)	Additive Tens. Red. (%)	Observed Tens.Red. (%)
H	0.73	7	1.45	4	11	20
	1.95	18	3.86	6	24	19
J	1.11[c]	7	1.68	4	11	14
	2.97[c]	18	4.47	6	24	26
B[D]	0.19	2	0.37	2	4	20
	0.51	5	0.98	3	8	32

A) Dimethylditallowammonium chloride

B) Di-(2-hydroxyethyl) – methylstearylammonium chloride

C) Behenyl-trimethylammonium chloride instead of Quat 1

D) Formulated with 33 wt.% PEG-6-dilaurate

As can be seen from the last two rows of Table 1, Formulation B exhibited tensile reductions of 20% versus a predicted 4% tensile reduction based on additive effectiveness of the quats present and a 32% tensile reduction versus a predicted tensile reduction of 8% based on the additive effectiveness of the quats present. This 4-5 fold decrease in tensile (corresponding to an increase in softness) was achieved by adding only 33% PEG-6-dilaurate; a remarkable reduction in tensile with very little added nonionic surfactant.

Osborn III '699 and the other references do not suggest the synergy which is achieved in connection with recycle furnish by the present invention for a number of reasons.

For one, *Osborn III* '699 does not mention recycle furnish. There is thus no motivation provided to combine this reference with *Back et al.* (or vice-versa), discussed below).

For another, *Osborn III* '699 does not disclose synergy; but rather *Osborn III* contains only a cryptic discussion of the utility of blends of ionic and nonionic surfactants, for example at Column 8, line 20 thereof and following:

> Conventional control paper towels were made by the foregoing process except that the papermaking furnish did not contain the quaternary ammonium compound or the nonionic surfactant and the imprinting fabric had a 3-shed weave of 12X10, MD by CD, filaments per centimeter. The paper towels of this invention made from the webs of this invention as made by the process of this invention, when compared to the control paper towels, were found to be significantly more absorbent by objective physical testing and significantly softer by human panel testing.

Given the lack of disclosure of synergy, one of skill in the art is not motivated to utilize the blends of surfactant disclosed in *Osborn III* '699 in a recycle furnish process or any other system for that matter. *Osborn III* does not suggest at all that such blends can be used to reduce tensile 25% or more at addition rates of 1 mol/ton of quat *in recycle furnish* as is claimed in Claim 1 and as is shown in Figure 2. Figure 2 is attached hereto as Exhibit A.

It can be seen from Figure 2 that Example Series B and Example Series I meet the synergy criteria of Claim 1, a 25% reduction in tensile, whereas the Example Series C-H and J, which only contain quat, do not. Moreover, Examples Series A which contains only 10% nonionic surfactant does not exhibit sufficiently reduced tensile to meet the criteria of Claim 1. Thus, the specification teaches that not all combinations of ionic/nonionic surfactants achieve the claimed results, but that in many cases, significant levels of nonionic surfactant is required. Note Claims 6 and 7 in this regard which require at least 25 percent and 30 percent respectively of nonionic surfactant. Claims 6 and 7 are accordingly believed most clearly allowable as is amended Claim 31 which now specifies a range of nonionic surfactant in the claimed process.

Back et al. is not believed to provide any disclosure which would motivate one of skill in the art to combine this reference with *Osborn IIII.* The disclosure discusses surfactants at Column 10, lines 5 and following but fails to suggest mixtures of quat and nonionic surfactants. Rather, the reference teaches only that cationic debonders can be used to reduce tensile in recycle furnish:

> In some cases, a cationic surfactant can be used, especially when debonding is also desired. Suitable cationic surfactants include imidazole compounds e.g., CIBAGEIGY's Amasoft® 16-7 and Sapamine® P quaternary ammonium compounds; Quaker Chemicals' Quaker® 2001; and American Cyanamid's Cyanatex®.

Column 10, lines 34-39. It appears to undersigned Counsel that which is not said in Column 10 of *Back et al.*, but rather implied, is perhaps more significant. *Back et al.* state that when debonding is desired, use a cationic surfactant. The implication is that nonionic surfactants are not effective debonders. This teaches away from the present invention which demonstrates significant synergy.

Wendt et al. '839 was cited to show that imidazolinium compounds are known; they are known, but Claim 31, as amended, and the dependent Claim 32, for example, claim specific synergistic combinations in a papermaking process and are believed allowable.

The various components of the invention claimed in this application are known in the art. Hindsight is 20/20. The combinations claimed in this application are not believed suggested in any way by the references. Claim 15, for example, requires a tensile reduction of 40 percent. Referencing Figure 2 of Exhibit A, it can be seen that this requirement needs a synergistic combination of debonder to be achieved with recycle furnish. None of the references suggest this claimed feature, which is highly desirable since it enables the use of recycle furnish in premium products.

Exhibit B hereto demonstrates the surprising results claimed in independent Claim 18, in particular, those heretofore unknown results set forth in Table 3 for maximum debonding when using recycle furnish:

Table 3: **HLB** for Maximum Debonding

No. Carbon Atoms in Fatty Acid	Preferred **HLB** for PEG-Mono R	Preferred **HLB** for PEG-di-R
R = C12	>10	<10
R = C18	>10	>10

In Figure 8 of Exhibit B hereto, it is seen that tensile reduction in recycle furnish is greatest when using PEG monoesters if the ester has a fatty acid claim of 12 carbons or more and an HLB value of greater than 10. A tensile reduction of from about 20 percent using an ester with an HLB value of 10 can be achieved, whereas a tensile reduction of about 30 can be readily achieved using a monoester with an HLB value of 14. Thus, one of skill in the art is taught a means by which to get 50% more tensile reduction by following the teachings of Figure 8.

Likewise, it was discovered that diesters exhibit certain unexpected and superior results depending on HLB values as can be seen in Figure 6 of Exhibit B. Higher HLB values are preferred with esters having longer fatty acid carbon chains and lower HLB values and preferred for esters having shorter fatty acid claims. The illustrated features are commensurate in scope with Claim 18 which is accordingly believed clearly allowable. The prior art is utterly devoid of any suggestion of this discovery.

In view of the foregoing amendments and remarks, this application is believed in condition for allowance. If for any reason the Examiner would like to discuss this case, the Examiner is invited to call at the number listed below.

Respectfully submitted,

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